

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: LEBERER, Ekkehard

Appl. No.: 09/758,036

Filing Date: January 11, 2001

Title: Potassium Channel Mutants of the Yeast *Saccharomyces Cerevisiae* and their use for Screening Eukaryotic Potassium Channels



Attorney Docket No.: 38005-0126

Confirmation No.: 8288

Examiner: Not yet assigned

Art Unit: 1645

**INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR §1.56 and 37 CFR §1.97**

Director of Patents
Washington, D.C. 20231

Sir:

Submitted herewith on Form PTO/SB/08A is a listing of documents known to applicants in order to comply with applicants' duty of disclosure pursuant to 37 C.F.R. §1.56 and §1.97. A copy of each of the listed documents are being submitted to comply with the provisions of 37 C.F.R. §1.97-1.99. A complete copy of references A28 and A42 were unavailable at the time of filing this Information Disclosure Statement. The applicant will submit a copy of these references in due course.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or is considered to be material to patentability as defined in 37 C.F.R. §1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a *prima facie* prior art reference against the claims of the present application.

TIMING/FEE

The instant Information Disclosure Statement is being filed in compliance with 37 CFR §1.97(b) prior to the mailing date of the first official action, therefore, no fee is required in connection with its filing.

Attorney Docket No. 38005-0126

Applicants respectfully request that the listed documents be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08A be returned in accordance with M.P.E.P. §609.

Respectfully submitted,

Date: June 11, 2001By Patricia D. Granados

HELLER EHRMAN WHITE & MCAULIFFE
1666 K Street, N.W., Suite 300
Washington, DC 20006
Telephone: (202) 912-2777
Facsimile: (202) 912-2020

Patricia D. Granados
Attorney for Applicant
Registration No. 33,683
Customer No. 26633

**26633**

PATENT TRADEMARK OFFICE



Please type a plus sign (+) inside this box ☐ +

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO		Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Application Number	09/758,036
		Filing Date	January 11, 2001
		First Named Inventor	Ekkehard LEBERER
		Group Art Unit	1645
		Examiner Name	Unassigned
Sheet 1 of 4	Attorney Docket Number	38005-0126	

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	A01	CURRAN, M.E., et al; "Molecular cloning, characterization, and genomic localization of a human potassium channel gene"; Genomics; 1992; pp. 729-737; Vol. 12; Academic Press, Inc.	
	A02	DASCAL, N. et al; "Atrial G protein-activated K ⁺ channel: Expression cloning and molecular properties"; Proc. Natl. Acad. Sci. USA; November 1993; pp. 10235-10239; Vol. 90;	
	A03	FAIRMAN, C., et al; "Potassium uptake through the TOK1 K ⁺ channel in the budding yeast"; J. Membr. Biol.; 1999; pp. 149-157; Vol. 168; Springer-Verlag New York Inc.; 1999	
	A04	FEDIDA, D. et al; "The 1997 Stevenson Award Lecture. Cardiac K ⁺ channel gating: cloned delayed rectifier mechanisms and drug modulation" Can. J. Physiol. Pharmacol; 1998; pp 77-89; Vol. 76; NRC Canada; 1998	
	A05	GABER, R.F. et al; "TRK1 encodes a plasma membrane protein required for high-affinity potassium transport in Saccharomyces cerevisiae" Mol. Cell Biol.; 1988; pp 2848-2859; Vol. 8; American Society for Microbiology; 1988	
	A06	GOLDSTEIN, S.A. et al; "Three new dominant drug resistant cassettes for gene disruption in Saccharomyces cerevisiae"; Yeast; 1999; pp 1541-1553; Vol. 15; John Wiley & Sons, Ltd.	
	A07	GOLDSTEIN, S.A. et al; "ORK1, a potassium-selective leak channel with two pore domains cloned from Drosophila melanogaster by expression in Saccharomyces cerevisiae"; Proc. Natl. Acad. Sci. USA; November 1996; pp 13256-13261; Vol. 93	
	A08	GULDENER, U. et al; "A new efficient gene disruption cassette for repeated use in a budding yeast"; Nucleic. Acids. Res; 1996; pp 2519-2524; Vol. 24; Oxford University Press	
	A09	IKEDA, K. et al; "Functional coupling of the nociceptin/orphanin FQ receptor with the G-protein-activated K ⁺ (GIRK) channel"; Brain Res. Mol. Brain Res.; 1997; pp 117-126; Vol. 45; Elsevier Science B.V.	
	A10	ITOH, T. et al; "Genomic organization and mutational analysis of HERG, a gene responsible for familial long QT syndrome"; Hum. Genet.; 1998; pp 435-439; Vol. 102; Springer-Verlag 1998	
	A11	JAN, L.Y. et al; "Cloned potassium channels from eukaryotes and prokaryotes"; Annu. Rev. Neurosci.; 1997; pp 91-123; Vol. 20; Annual Reviews Inc.	
	A12	JELACIC, T.M. et al; "Functional expression and characterization of G-protein-gated inwardly rectifying K ⁺ channels containing GIRK3" J. Membr. Biol. 1999; pp 123-129; Vol. 169; Springer-Verlag New York Inc.; 1999	

Examiner Signature	Date Considered
--------------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /MKJ/

Copied from 09855340 on 05/06/2005

RECEIVED

JUN 14 2001

TECH CENTER 1600/2900

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 2 of 4

Complete if Known

Application Number	09/758,036
Filing Date	January 11, 2001
First Named Inventor	Ekkehard LEBERER
Group Art Unit	1645
Examiner Name	Unassigned
Attorney Docket Number	38005-0126

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	A13	KETCHUM, K.A. et al; "A new family of outwardly rectifying potassium channel proteins with two pore domains in tandem"; Nature; August 24, 1995; pp 690-695; Vol. 376	
	A14	KO, C.H. et al; "TRK2 is required for low affinity K ⁺ Transport in Saccharomyces cerevisiae"; Genetics; June 1990; pp 305-312; Vol. 125; The Genetics Society of America	
	A15	KO, C.H. et al; "TRK1 and TRK2 encode structurally related K ⁺ transporters in Saccharomyces cerevisiae" Mol. Cell. Biol.; 1991; pp 4266-4273; Vol. 11; American Society for Microbiology	
	A16	KUBO, Y. et al; "Primary structure and functional expression of a rat G-protein-coupled muscarinic potassium channel"; Nature; August 26, 1993; pp 802-806; Vol. 364	
	A17	LUDWIG, A. et al; "Two pacemaker channels from human heart with profoundly different activation kinetics"; EMBO Journal; 1999; pp 2323-2329; Vol. 18	
	A18	MADRID, R. et al; "Ectopic potassium uptake in trk1 trk2 mutants of Saccharomyces cerevisiae correlates with a highly hyperpolarized membrane potential"; J. Biol. Chem; 1998; pp14838-14844; Vol. 273; The American Society for Biochemistry and Molecular Biology, Inc., United States	
	A19	MAIN, M.J. et al; "The CGRP receptor can couple via pertussis toxin sensitive and insensitive G proteins"; FEBS Lett.; 1998; pp 6-10; Vol. 441; Federation of European Biochemical Societies	
	A20	MUMBERG, D. et al; "Yeast vectors for the controlled expression of heterologous proteins in different genetic backgrounds"; Gene; 1995; pp 119-122; Vol 156	
	A21	MYERS, A.M. et al; "Mitochondrial protein synthesis is required for maintenance of intact mitochondrial genomes in Saccharomyces cerevisiae"; EMBO Jour.; 1985; pp 2087-2092; Vol. 4; IRL Press Limited, Oxford England	
	A22	NAKAMURA, R.L. et al; "Determination of key structural requirements of a K ⁺ channel pore"; J. Biol. Chem. 1997; pp 1011-1018; Vol. 272; The American Society for Biochemistry and Molecular Biology, Inc.	
	A23	ROBERDS, S.L. et al; "Cloning and tissue-specific expression of five voltage-gated potassium channel cDNAs expressed in rat heart"; Proc. Natl. Acad. Sci. U.S.A.; 1991; pp 1798-1802; Vol. 88	
	A24	RONICKE, V. et al; "Use of conditional promoters for expression of heterologous proteins in Saccharomyces cerevisiae"; Methods Enzymol.; 1997; pp 313-322; Vol. 283	

Examiner
SignatureDate
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /MKJ/

Copied from 09855340 on 05/06/2005



Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)		Complete if Known	
		Application Number	09/758,036
		Filing Date	January 11, 2001
		First Named Inventor	Ekkehard LEBERER
		Group Art Unit	1645
		Examiner Name	Unassigned
Sheet 3 of 4	Attorney Docket Number	38005-0126	

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	A25	SANGUINETTI, M.C. et al; "Molecular physiology of cardiac delayed rectifier K ⁺ channels" Heart Vessels; 1997; pp 170-172; Vol. 12; Springer-Verlag 1997	
	A26	SCHREIBMAYER, W. et al; "Inhibition of an inwardly rectifying K ⁺ channel by G-protein alpha-subunits"; Nature; 1996; pp 624-627; Vol. 380	
	A27	SMITH, F.W. et al; "Plant members of a family of sulfate transporters reveal functional subtypes"; Proc. Natl. Acad. Sci. U.S.A.; 1995; pp 9373-9377; Vol. 92	
	A28	SNYDERS, D.J. et al; "A rapidly activating and slowly inactivating potassium channel cloned from human heart. Functional analysis after stable mammalian cell culture expression"; J. Gen Physiol.; 1993; pp 513-543; Vol. 101	
	A29	TAGLIALATELA, M. et al; "Human ether-a-gogo related Gene (HERG) K ⁺ channels as pharmacological targets: present and future implications.; Biochem. Pharmacol.; 1998; pp 1741-1746; Vol. 55	
	A30	TANG, W. et al; "Functional expression of a vertebrate inwardly rectifying K ⁺ channel in yeast"; Mol. Biol. Cell; 1995; pp 1231-1240; Vol. 6; The American Society for Cell Biology	
	A31	WACH, A. et al; "New heterologous modules for classical or PCR-based gene disruptions in Saccharomyces cerevisiae"; Yeast; 1994; pp 1793-1808; Vol. 10; John Wiley & Sons Ltd.	
	A32	WANG, Q. et al; "Genetics, molecular mechanisms and management of long QT syndrome"; Ann. Med.; 1998; pp 58-65; Vol. 30; The Finnish Medical Society Duodecim	
	A33	WILDE, A.A. et al; "Ion channels, the QT interval, and arrhythmias"; Pacing. Clin. Electrophysiol.; 1997; pp 2048-2051; Vol. 20	
	A34	WISCHMEYER, E. et al; "Subunit interactions in the assembly of neuronal Kir3.0 inwardly rectifying K ⁺ channels"; Mol. Cell. Neurosci.; 1997; pp 194-206; Vol 9; Academic Press	
	A35	YAMADA, M. et al; "G Protein regulation of potassium ion channels"; Pharmacol. Rev.; 1998; pp 723-760; Vol. 50; The American Society for Pharmacology and Experimental Therapeutics; United States	
	A36	BOCK, J.H. et al; "Nucleotide sequence analysis of the human KCNJ1 potassium channel locus"; Gene; 1997; pp 9-16; Vol. 188; Elsevier Science B.V.	

Examiner Signature	Date Considered
--------------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /MKJ/

Copied from 09855340 on 05/06/2005



09758036 RECEIVED 1636

JUN 14 2001

TECH CENTER 1600/2900

Please type a plus sign (+) inside this box → ☐

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet 4 of 4

Complete if Known

Application Number	09/758,036
Filing Date	January 11, 2001
First Named Inventor	Ekkehard LEBERER
Group Art Unit	1645
Examiner Name	Unassigned
Attorney Docket Number	38005-0126

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	A37	DELPON, E. et al; "Blockade of cardiac potassium and other channels by antihistamines"; Drug Safety; 1999; pp 11-18; Vol. 1; Adis International Limited.	
	A38	DRICI, M.D. et al; "Cardiac K ⁺ channels and drug-acquired long QT syndrome" Therapie; 2000; pp 185-193; Vol. 55	
	A39	DuBUSKE, L.M. "Second-generation antihistamines: the risk of ventricular arrhythmias"; Clin. Ther.; 1999; pp 281-295; Vol. 21	
	A40	ITOH, T. et al; "Genomic organization and mutational analysis of KVLQT1, a gene responsible for familial long QT syndrome"; Hum. Genet.; 1998; pp 290-294; Vol. 103; Springer-Verlag 1998	
	A41	KOBAYASHI, T. et al; "Inhibition by various antipsychotic drugs of the G-protein-activated inwardly rectifying K(+) (GIRK) channels expressed in xenopus oocytes"; Br. J. Pharmacol; 2000; pp 1716-1722; Vol. 129; Macmillian Publishers Ltd.	
	A42	RICHELSON, E. "Preclinical pharmacology of neuroleptics: focus on new generation compounds"; J. Clin. Psychiatry; 1996; pp 4-11; Vol. 57; Suppl. 11	
	A43	RICHELSON, E. ; "Receptor pharmacology of neuroleptics: relation to clinical effects"; J. Clin. Psychiatry; 1999; pp. 5-14; Vol. 60; Suppl. 10	
	A44	SHUCK, M.E. et al; "Cloning and characterization of multiple forms of the human kidney ROM-K potassium channel"; J. Biol. Chem.; 1994; pp 24261-24270; Vol. 269; "The American Society for Biochemistry and Molecular Biology, Inc.; United States	
	A45	TAGLIALATELA, M. et al; "Cardiac ion channels and antihistamines: possible mechanisms of cardiotoxicity"; Clin. Exp. Allergy; 1999; pp 182-189; Vol. 29; Suppl. 3; Blackwell Science Ltd.	

Examiner
Signature

/Michele K. Joike/

Date
Considered

06/23/2008

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /MKJ/

Copied from 09855340 on 05/06/2005